

Geo's Ice Cream Trouble

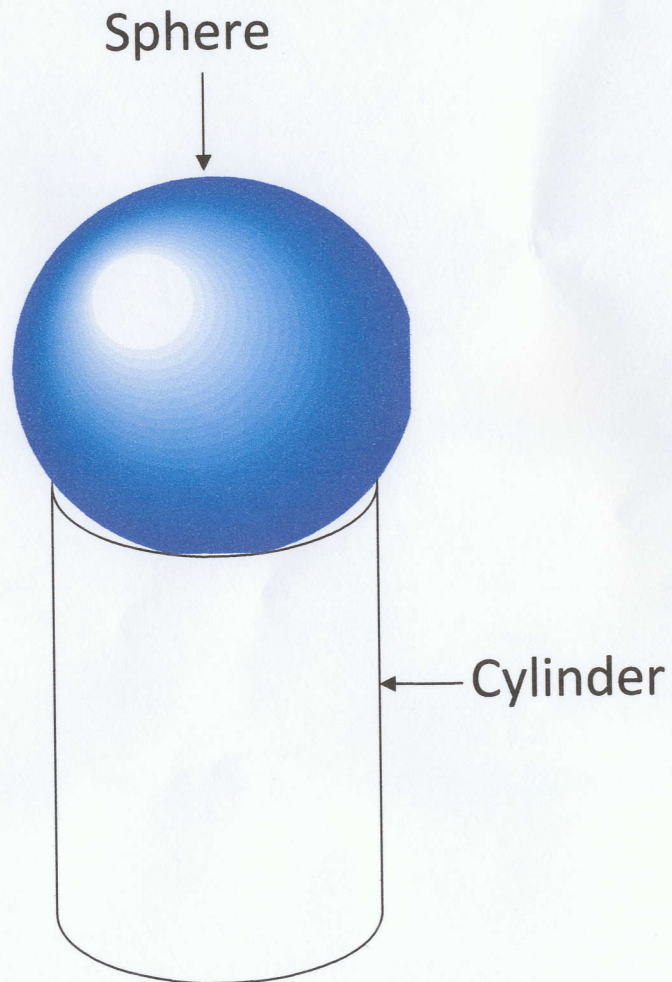


By: Daniel Thul and Dustin Dehart

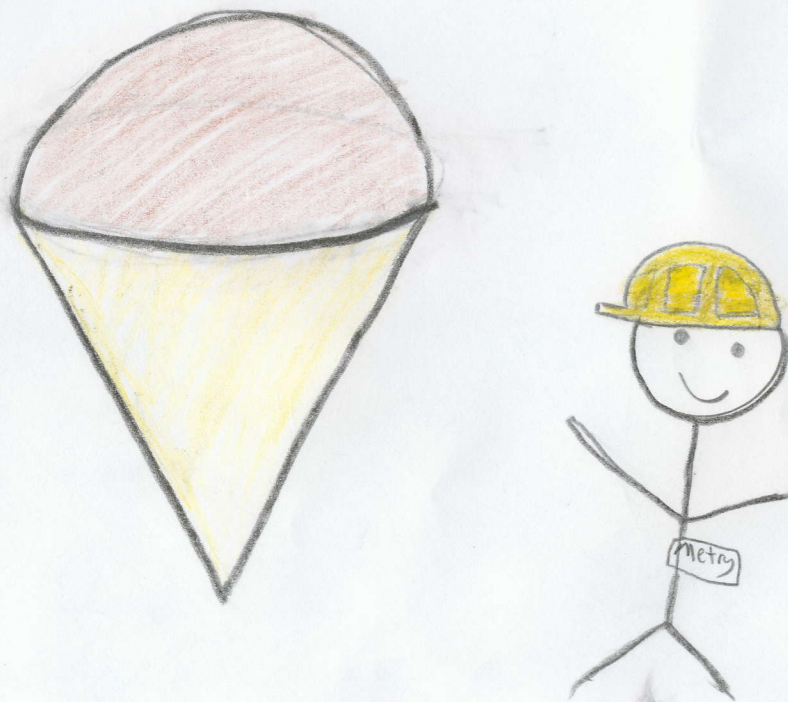
One day, there was a man named Geo who had to design an ice cream factory. While he was designing, he ran in to a problem with the giant ice cream cone statue that was going to be out front.

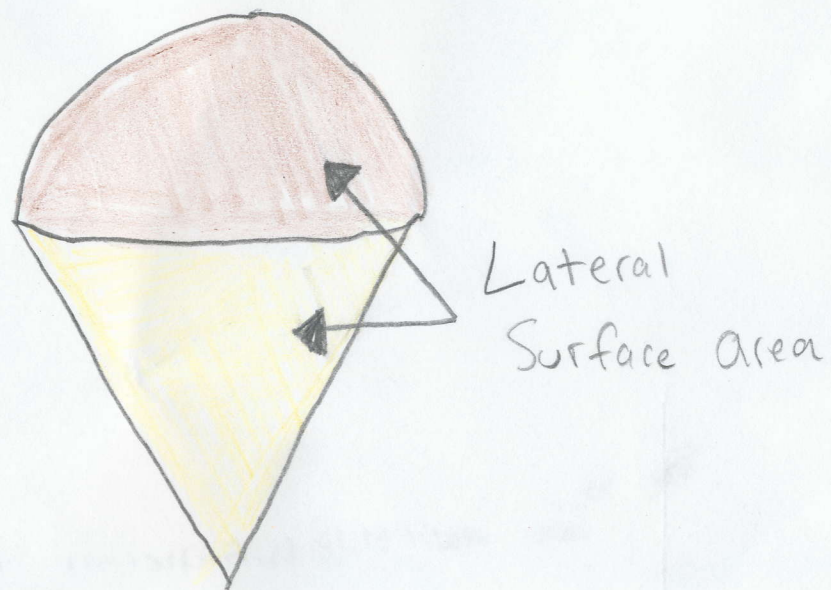


He had a cylinder, a 3-d shape with circle bases, which was 15 feet tall. It had a sphere on top of it, a 3-d shape that looks like a ball. He did not think that this looked like an ice cream cone. So he called his friend Metry to come help him.



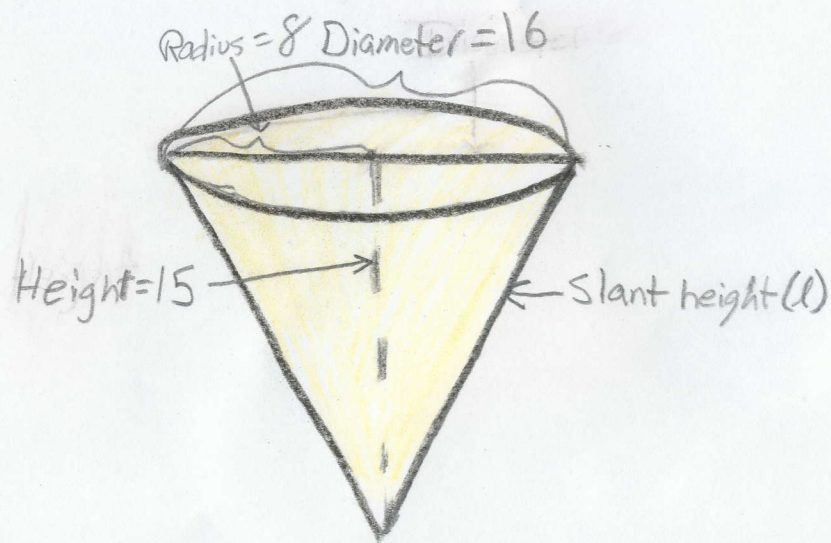
Metry says that an ice cream cone looks like an up-side down cone, a 3-d figure with a circle base that comes to a single vertex, with a hemisphere, half of a sphere, on top of it. Now geo has to find out how much it will cost to paint the outside of the ice cream cone.



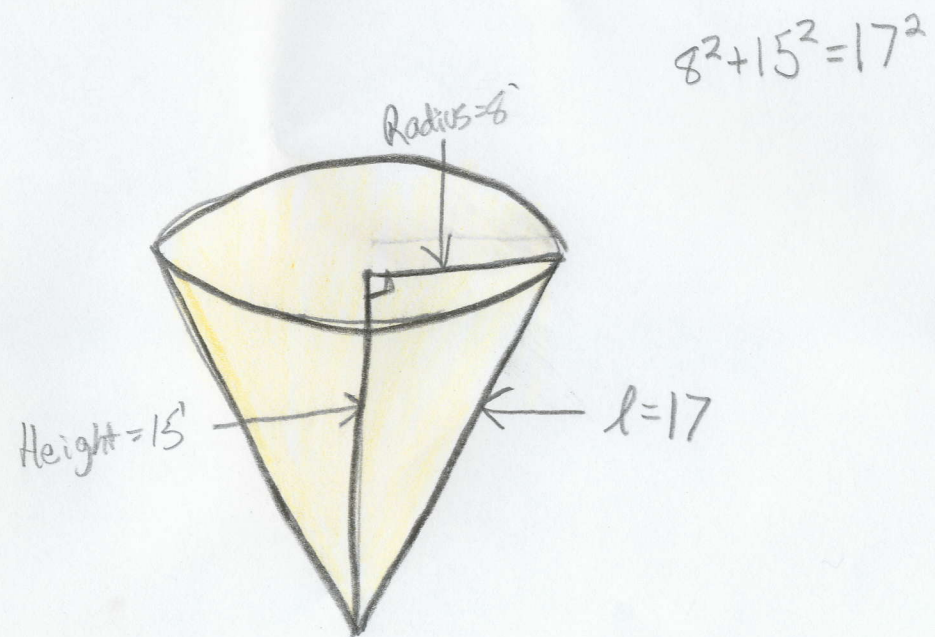


Metry told him that he has to find the lateral surface area of the whole figure, which is the area of the outside that needs to be painted.

Since the cone is 15 feet tall, its height is 15 feet. The diameter, the distance across the circular base of the cone, is 16 feet. Then the radius, half of the diameter, is 8 feet. The formula for the lateral area of the cone is $\pi r l$ where r =radius and l = slant height. This means they need to find the slant height, which is the distance from the circle to the vertex.



Metry said the height, radius, and slant height make a right triangle, a triangle with one right angle. So they used the Pythagorean triple 8-15-17 to find the slant height. Therefore, the slant height is 17 feet.



So the lateral area of the cone equals 427.26 feet^2 because $8 \times 17 \times \pi = 427.26 \text{ ft.}^2$. Now they had to find the lateral surface area of the hemisphere on top.

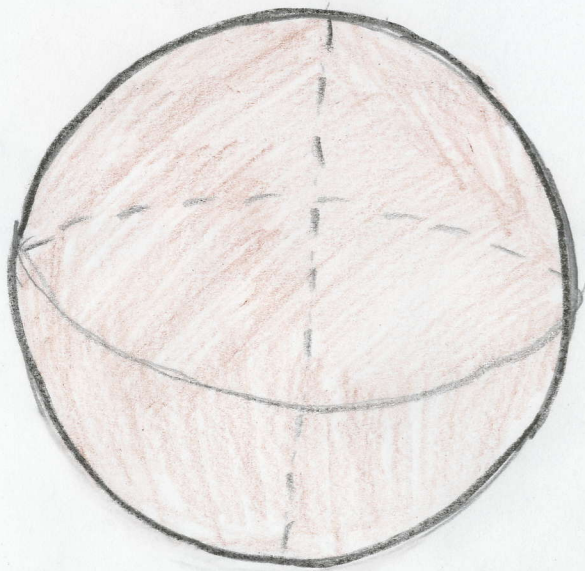


$$8 \times 17 \times \pi = 427.26 \text{ ft.}^2$$



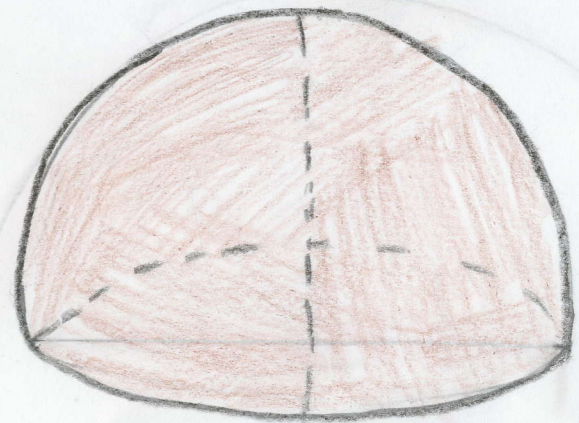
The formula ^{for} a sphere is $4 \times \pi r^2$, but they only needed half of the sphere. So the formula changed to $2 \times \pi r^2$. The radius of the hemisphere is 8 feet since the radius of the cone is 8 feet, which would make the lateral area of the hemisphere 402.12 feet².

$$L.A. = 4\pi r^2$$



$$\div 2 =$$

$$L.A. = 2\pi r^2$$



$$2 \times 8^2 \times \pi = 402.12 \text{ ft}^2$$

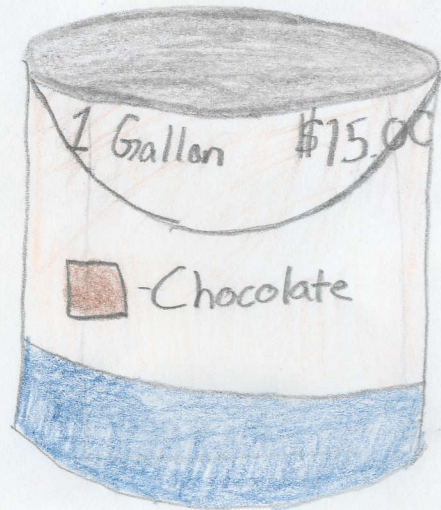
$$L.A. = 402.12 \text{ ft}^2$$

They had to add 402.12 to 427.26 to get the total lateral surface area of the ice cream cone, which equaled 829.38 feet². Now Metry said they had to find how much the paint will cost by multiplying the total lateral area times the cost of paint per square foot.

$$\text{Total Surface} = 829.38 \text{ ft}^2$$



Paint comes in a one gallon can that covers 60 ft.^2 and cost \$15 per can. To find how much one square foot costs they had to divide 15 by 60 and got 25 cents per 1 ft.^2 . Then Geo took 829.38 times .25 to find the total cost of the paint. He got \$207.35 for the cost of the paint.

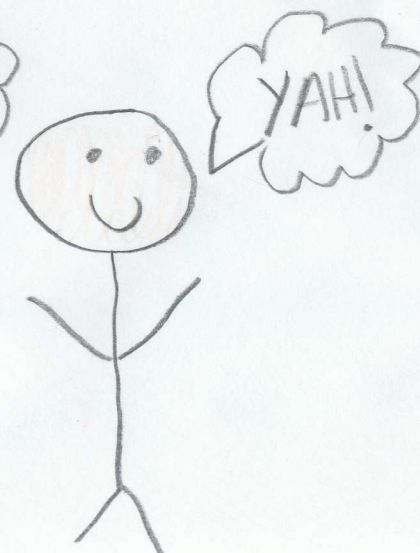


$$\frac{\$15/\text{ft.}^2}{60 \text{ ft.}^2} = \$.25/\text{ft.}^2$$

$$829.38 \times .25 = \boxed{\$207.35}$$

Afterwards, Geo's boss said that they did such a good job that he was going to name their method after them. He called it geometry!!!!!!

GEOMETRY!



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<http://office.microsoft.com/en-us/clipart/results.aspx?qu=ice+cream+cone&sc=21#24>

